



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

SCO 412: MOBILE COMPUTING AND WIRELESS TECHNOLOGY

DATE: 22/3/2021

TIME: 8.30-10.30 AM

INSTRUCTION

Answer question **ONE** and **Any** other **Two** among the four selective questions

QUESTION ONE (30 MARKS) (COMPULSORY)

- a) Describe mobile IP (8 marks)
- b) List any six advantages of mobile computing (6 marks)
- c) Explain four types of handover in GSM network (8 marks)
- d) Identify major devices of a wireless network (8 marks)

QUESTION TWO (20 MARKS)

- a) Justify the need for wireless standards (5 marks)
- b) Explain the following mobility characteristics (6 marks)
 - i. Heterogeneity in services
 - ii. Dynamic replication of data
 - iii. Querying data - location-based responses
- c) Describe GPRS (4 marks)

QUESTION THREE (20 MARKS)

- a) List the components of a WAP (6 marks)
- b) Discuss the issues with the following with respect to data management in mobile computing (6 marks)
 - i. Location management
 - ii. Transaction processing
- c) Explain any three routing strategies in mobile computing (6 marks)
- d) Define peer-to-peer systems (2 marks)

QUESTION FOUR (20 MARKS)

- a) Using a well labelled diagram, explain satellite communication (8 marks)
- b) List any four multiplexing techniques used in mobile computing (4 marks)
- c) Describe M-Commerce (8 marks)

QUESTION FIVE (20 MARKS)

- a) Identify any five mobile operating systems (5 marks)
- b) Describe pervasive computing (5 marks)
- c) Explain five vulnerabilities of mobile computing (10 marks)